

Serial No. 09/501,168

18. (canceled)

1 19. (previously presented) The invention as defined in claim 17 wherein said
2 security information is received from a security center.

1 20. (currently amended) The invention as defined in claim 17 wherein said
2 security information is received from a base station other than said first or second base
3 stations.

1 21. (previously presented) A method for performing a handoff in a wireless
2 network having at least first and second base stations and a least one wireless terminal,
3 the method comprising the steps of:
4 receiving a request, by said second base station, from said wireless terminal for a
5 handoff between said first base station to said second base station;
6 performing an expedited handoff using previously unused security information
7 when second base station knows said first base station prior to receiving said request; and
8 performing a nonexpedited handoff when second base station does not know said
9 first base station prior to receiving said request.

1 22. (original) The invention as defined in claim 21 wherein said step of
2 performing an expedited handoff includes the step of transferring security information
3 from said first base station to said second base station.

Remarks

Claims 1-8, 10-17, and 19-22 were pending in the application. Claim 3 is canceled hereby. Hence, claims 1-3, 4-8, 10-17, and 19-22 remain pending in the application.

Claims 8 and 16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form.

Claims 1-4, 5, and 7 are rejected under 35 U.S.C. 102(e) as being unpatentable over United States Patent No. 6,434,134 issued to La Porta et al. on August 12, 2002.

Serial No. 09/501,168

SEP 28 2006

Claims 10, 17, and 21 are rejected under 35 U.S.C. 102(b) as being unpatentable over United States Patent No. 5,195,090 issued to Bolliger et al. on March 16, 1993.

Claims 11-15, 19-20, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bolliger et al. in view of La Porta et al.

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over La Porta et al. in view of United States Patent No. 5,598,459 issued to Haartsen on January 28, 1997.

Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bolliger et al. in view of Haartsen.

An inadvertent error was corrected in claim 10.

Each of the various rejections and objections are overcome by amendments that are made to the specification, drawing, and/or claims, as well as, or in the alternative, by various arguments that are presented.

Any amendments to any claim for reasons other than as expressly recited herein as being for the purpose of distinguishing such claim from known prior art are not being made with an intent to change in any way the literal scope of such claims or the range of equivalents for such claims. They are being made simply to present language that is better in conformance with the form requirements of Title 35 of the United States Code or is simply clearer and easier to understand than the originally presented language. Any amendments to any claim expressly made in order to distinguish such claim from known prior art are being made only with an intent to change the literal scope of such claim in the most minimal way, i.e., to just avoid the prior art in a way that leaves the claim novel and not obvious in view of the cited prior art, and no equivalent of any subject matter remaining in the claim is intended to be surrendered.

Also, since a dependent claim inherently includes the recitations of the claim or chain of claims from which it depends, it is submitted that the scope and content of any dependent claims that have been herein rewritten in independent form is exactly the same as the scope and content of those claims prior to having been rewritten in independent form. That is, although by convention such rewritten claims are labeled herein as having been "amended," it is submitted that only the format, and not the content, of these claims has been changed. This is true whether a dependent claim has been rewritten to expressly

Serial No. 09/501,168

include the limitations of those claims on which it formerly depended or whether an independent claim has been rewriting to include the limitations of claims that previously depended from it. Thus, by such rewriting no equivalent of any subject matter of the original dependent claim is intended to be surrendered. If the Examiner is of a different view, he is respectfully requested to so indicate.

Rejections Under 35 U.S.C. 102

Claims 1-4, 5, and 7 are rejected under 35 U.S.C. 102(e) as being unpatentable over United States Patent No. 6,434,134 issued to La Porta et al. on August 12, 2002. This ground of rejection is respectfully traversed for the following reasons.

La Porta et al. fails to teach the limitation applicants' independent claim 1 of transferring security information that was originally supplied by a central security node and was not used by the first base station from the first base station to the second base station. Rather, La Porta et al. teaches transferring security information that was originally supplied by a central security node and was used by the first base station. This can be seen from column 32, line 65 to column 33, line 5 of La Porta et al., which states:

Authentication information for the user is first stored in the current base station when the mobile device powers up. When the mobile device is handed off to a new base station, the old base station approves the path setup message only if the mobile device is able to authenticate itself in the path setup message. The authentication information is then transferred from the user's old base station to the new base station on the acknowledgment of the path setup message.

Clearly, the authentication information stored in the current base station is the authentication information used to initially authenticate the mobile device by the current base station. Then, when the mobile device is moving to a new base station, the already used authentication information is transferred from the current (old) base station to the new base station. There is no teaching that any additional security information is to be obtained and stored by current base station to be supplied later to another base station. Indeed, one of ordinary skill in the art would have considered doing so wasteful of both bandwidth and available storage, and so would not have done so.

Serial No. 09/501,168

Applicants are not aware of any teaching that would suggest that HLR authentication or the RADIUS protocol authentication teaches transferring security information that was originally supplied by a central security node and was **not** used by the first base station from the first base station to the second base station. If the Examiner is aware of such a teaching, he is invited to present it in detail to applicants.

Thus, applicants' independent claim 1 is allowable over La Porta et al. under 35 U.S.C. 102. So too then applicants' dependent claims 2-4, 5, and 7 are allowable over La Porta et al., in that they depend from, and include all the limitations of, allowable claim 1.

Turning now to the rejection of claims 10, 17, and 21 under 35 U.S.C. 102(b) as being unpatentable over United States Patent No. 5,195,090 issued to Bolliger et al. on March 16, 1993, this ground of rejection is traversed for the following reason.

First, regarding claim 10, there is **no** teaching in Bolliger et al. of an expedited handoff that employs information about the wireless terminal that was transferred from a first base station to a second base station. In this regard, note that a soft handoff as described in Bolliger et al. and an expedited handoff referred to in applicants' claims are **not** the same thing. Soft handoff is explained in the Wikipedia at http://en.wikipedia.org/wiki/Soft_handover as follows:

Soft handover or soft handoff refers to a feature used by the CDMA standard, where a cell phone is simultaneously connected to two or more cells (or cell sectors) during a call. If the sectors are from the same physical cell site (a sectorised site), it is referred to as softer handoff. This technique is a form of mobile-assisted handover, for IS-95/CDMA2000 CDMA cell phones continuously make power measurements of a list of neighboring cell sites, and determine whether or not to request or end soft handover with the cell sectors on the list.

Due to the properties of the CDMA signaling scheme, it is possible for a CDMA subscriber station to simultaneously receive signals from two or more radio base stations that are transmitting the same bit stream on the same channel. If the signal power from two or more radio base stations is nearly the same, the subscriber station receiver can combine the received signals in such a way that the bit stream is decoded much more reliably than if only one base station were transmitting to the subscriber station. If any one of these signals fades significantly, there will be a relatively high probability of having adequate signal strength from one of the other radio base stations.

On the "reverse" (mobile-phone-to-cell-site) link, all the cell site sectors that are actively supporting a call in soft handover send the bit

Serial No. 09/501,168

stream that they receive back to the Base Station Controller (BSC), along with information about the quality of the received bits. The BSC examines the quality of all these bit streams and dynamically chooses the bit stream with the highest quality. Again, if the signal degrades rapidly, the chance is still good that a strong signal will be available at one of the other cell sectors that is supporting the call in soft handover.

This is confirmed, in brief, by Bolliger et al. at column 2, lines 29-64, which states as follow:

But, due to the frequency reuse between adjacent cells, a mobile radio-telephone that is crossing from one cell zone to another may sometimes find itself communicating with two cells on the same radio channel at the same time, a situation known as "soft handoff". A whole sequence of "soft handoffs" may occur as a mobile radio-telephone moves through a series of cells.

Handling of CDMA call capacity and "soft handoff" is not easily accomplished in a mobile radio-telephone system having the conventional FDMA architecture. This is due in large measure to the fact that the increased call capacity of CDMA radio systems results in the communications network that interconnects the cells with the public telephone network having to handle up to twenty times as many calls as before. Furthermore there are typically many more "soft handoffs" in a typical CDMA system than there are "hard handoffs" in a conventional system and the "soft handoffs" are typically of longer duration than "hard handoffs", and so the demands placed by "soft handoffs" on system resources and processing and switching facilities are more extensive and acute. Handling of "soft handoffs" additionally requires, inter alia: routing of the duplicate communications received from one mobile telephone at the two cells to a common call-processing point in the system, for selection in real time of one and discarding of the other duplicate communication; duplication of return communications and routing thereof to the two cells; and coordination of the operations of the two cells so that they transmit the duplicate return communications to the mobile telephone at the same time. Conceivable ways of meeting these requirements in conventionally-architected radio-telephone systems appear to be awkward, inefficient, complex, and expensive.

Notice that in the soft handoff information is only exchanged between the mobile terminal and the various base stations. There is thus no teaching or suggestion in Bolliger et al. that information be transferred between the two base stations involved in a soft handoff, as required by applicants' claim 10 for an expedited handoff. Since no information is transferred between the two base stations, there certainly cannot be any use of such nontransferred information as part of an expedited handoff, such use being

Serial No. 09/501,168

required by applicants' claim 10. Thus, applicants' independent claim 10 is allowable over Bolliger et al. under 35 U.S.C. 102.

As to claim 17, since Bolliger et al. does not teach transferring information between the two base stations involved in a soft handoff, there is certainly not security information transferred between them. Indeed, in Bolliger et al., there is no teaching or suggestion that security information be supplied from said first base station in response to any request for a handoff between the first base station and the second base station. Thus, applicants' independent claim 17 is allowable over Bolliger et al. under 35 U.S.C. 102.

Lastly, regarding claim 21, Bolliger et al. does not teach the existence of any unused security information, so there cannot be any expedited handoff based on it. Thus, applicants' independent claim 21 is allowable over Bolliger et al. under 35 U.S.C. 102.

Since applicants' independent claims 10, 17, and 21 are allowable, so too are all the dependent claims that depend from a respective one of those independent claims.

Rejections Under 35 U.S.C. 103(a)

Dependent claims 11-15, 19-20, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bolliger et al. in view of La Porta et al. This ground of rejection is respectfully traversed for the following reason.

Given that each of the independent claims from which each of these dependent claims respectively depends is allowable over Bolliger et al. for the reasons cited hereinabove, and La Porta et al. does not supply elements that would enable a proper obviousness rejection of any of these independent claims, because it does not supply at least one of the elements indicated hereinabove to be lacking in Bolliger et al., the dependent claims are allowable over the proposed combination under 35 U.S.C. 103(a).

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over La Porta et al. in view of United States Patent No. 5,598,459 issued to Haartsen on January 28, 1997. This ground of rejection is respectfully avoided for the following reason.

Independent claim 1 has been combined with now canceled 3. Thus, independent claim 1 now requires that at least a portion of the security information that is transferred between the first and second base stations is used to validate the at least one mobile wireless terminal to the second base station. This is not taught by Haarsen. Rather,

Serial No. 09/501,168

Haartsen teaches that the security information transferred between the base stations is used to authenticate the transferee base station. Clearly this is not the same as, nor is it suggestive of, authenticating the cellular terminal to a base station. Indeed, Haartsen teaches away from authenticating the cellular terminal to the new base station, at column 2, line 63 through column 3, line 8, which states:

The present invention stems from the realization that during handover from the wide area cellular network to the telephone base station, the cellular terminal has already been authenticated by the wide area cellular network. Thus, the telephone base station, rather than the cellular terminal, should be the subject of authentication. The telephone base station is verified by the wide area cellular network, using the cellular terminal to relay authentication messages between the telephone base station and the wide area cellular network. If the authentication is successful, the cellular terminal is handed over from the wide area cellular network to the telephone base station.

Given that independent claim 1 from which dependent claim 6 depends is allowable under 35 U.S.C. 103 over the combination of La Porta et al. in view of Haartsen, so too is dependent claim 6, which depends from claim 1 and includes all the limitations thereof.

Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bolliger et al. in view of Haartsen. This ground of rejection is respectfully traversed for the following reason.

It seems that it is inappropriate to combine Bolliger et al. and Haartsen, since, in what the Office Action regards to be an expedited handover, Bolliger et al. at best teaches to authenticate a wireless terminal to a base station, while Haartsen teaches authenticate a base station to a base station. Thus, one of ordinary skill in the art would not combine Bolliger et al. and Haartsen.

Also, dependent claim 13 depends from independent claim 10. As indicated hereinabove, there is no teaching or suggestion in Bolliger et al. that information be transferred between the two base stations involved in a soft handoff, as required by applicants' claim 10 for an expedited handoff. Since no information is transferred between the two base stations, there certainly cannot be any use of such nontransferred information as part of an expedited handoff, such use being required by applicants' claim

Serial No. 09/501,168

10. It appears that Haartsen also does not perform any form of expedited handoff, since each handoff request requires full authentication of the base station being handed off to. As a result, it also cannot be said, that the second base station knows the first base station, because if it did, there would be no need for authentication. Thus, even if one were to combine Bolliger et al. and Haartsen, the result would not be applicants' invention as claimed in claim 10. Instead, it would be a system that used soft handoff, in that the wireless terminal was in contact with both base stations at the same time, and a complete security challenge was issued to the transferee base station each time the wireless terminal was being transferred. Clearly this is not applicants' independent claim 10, which is allowable over Bolliger et al. and Haartsen under 35 U.S.C. 103.

Given that independent claim 10 from which dependent claim 13 depends is allowable under 35 U.S.C. 103 over the combination of Bolliger et al. in view of Haartsen, so too is dependent claim 13, which depends from claim 10 and includes all the limitations thereof.

Serial No. 09/501,168

RECEIVED
CENTRAL FAX CENTER

SEP 28 2006

Conclusion

It is respectfully submitted that the Office Action's rejections have been overcome and that this application is now in condition for allowance. Reconsideration and allowance are, therefore, respectfully solicited.

If, however, the Examiner still believes that there are unresolved issues, he is invited to call applicant's attorney so that arrangements may be made to discuss and resolve any such issues.

In the event that an extension of time is required for this amendment to be considered timely, and a petition therefor does not otherwise accompany this amendment, any necessary extension of time is hereby petitioned for, and the Commissioner is authorized to charge the appropriate cost of such petition to the **Lucent Technologies Deposit Account No. 12-2325**.

Respectfully,

S. Davies
M. VanderveenBy Steven R. Santema
Steven R. Santema, Attorney
Reg. No. 40156
630-979-7006

Lucent Technologies Inc.

Date: 9/28/06